

Effect of Gamma Irradiation on Antioxidant Activity of Temulawak (*Curcuma xanthorrhiza* Roxb.)

Farah Nurlidar and Rahayu Chosdu

Radiation Processing Division

Center for Application of Isotope and Radiation Technology, BATAN

Jl. Cinere, Psr. Jumat, Jakarta Selatan, Jakarta 12070, Indonesia

Correspondence: Tel.: +62217690709, Fax: +62217691607, email: oerly_27@yahoo.com

ABSTRACT

Gamma irradiation are widely applied today as an alternative technology for radiopasteurization of medicinal herbs. This experiment was designed to evaluate the effect of gamma irradiation on antioxidant activity of Temulawak (*Curcuma xanthorrhiza* Roxb.). Effect of gamma irradiation on the antioxidant activity of temulawak was carried out in four samples: fresh, dried slices, powder and "curcumin tablet" of temulawak. Dried slices, powder and "curcumin tablet" were irradiated at the doses of 5 and 10 kGy (pasteurization dose), while the fresh temulawak was irradiated at the doses of 0.05 and 0.1 kGy (sprouting inhibition dose). Methanolic extracts of gamma irradiated as well as un-irradiated temulawak samples were analysed for their antioxidant activity by measuring the reducing power and DPPH radical scavenging activity. The present study suggested that gamma-irradiation can be applied for radiopasteurization of dried slices, powder and "curcumin tablet" at the dose up to 10 kGy and for sprouting inhibition of fresh temulawak at the dose up to 0.1 kGy without significant change on their antioxidant activity.

Keyword: Gamma irradiation, Temulawak (*Curcuma xanthorrhiza* Roxb.), antioxidant activity